

TOP SECRET

IDEA-0447-69
Copy 2 of 3

25X1

14 May 1969

MEMORANDUM FOR: DIRECTOR OF SPECIAL ACTIVITIES

SUBJECT : [REDACTED] Message [REDACTED] 12 May 1969

25X1

1. The referenced message, ATTACHMENT # 1, was reviewed and the incident was discussed at length with Life Support personnel at Detachment G and with Col. Shelton.

2. Col. Shelton suggested that the undersigned draft a message to [REDACTED] for your signature, should you decide that the incident and analysis warrant such action. The message drafted for your release is attached, ATTACHMENT # 2. It covers the incident, possible causes, analyses, conclusions and actions taken.

3. It is the opinion of the undersigned that the incident was very minor in nature and in itself does not warrant widespread dissemination. Likewise there is no proof that the LOX used [REDACTED] had any role in the incident. However, it may be desirable [REDACTED] to be aware of a possible slight contamination problem at [REDACTED] so that they could prevent a more serious problem.

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SIGNED

[REDACTED]
AMS/OSA

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Attachments
As stated

[REDACTED]
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AMS/OSA [redacted]

Distribution:

Cy - 1 - D/SA
2 - AMS/OSA
3 - RB/OSA

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(When Filled In)

FILE INFO

12 MAY 69 00758

REPRODUCTION PROHIBITED

12 MAY 69 20 25

ACTION	1	Idea	6	D/M	11	DISA	16
	2	"	7	/	12		17
25X1	3	DIO	8	/	13		18
25X1	4	AMS	9	/	14		19
	5	"	10	RB	15		20

SECRET 1219Z MAY 69 CITE

25X1 1. ON RETURN LEG SCOPE SAINT II (FLIGHT TIME 13 HOURS PLUS 5 MINUTES), PILOT [REDACTED] COMPLAINED OF MILD BURNINGS EYES AND AN ODOR AFTER 9 PLUS HOURS FLYING TIME. WE HAVE HAD SIMILAR COMPLAINTS OF EYE PROBLEMS, WHICH WE FEEL DUE TO "DRYING OF THE EYEBALLS", ON PREVIOUS FLIGHTS OF LONG DURATION

2. AS A PRECAUTION, AND SINCE THIS WAS [REDACTED] WE SAMPLED THE REMAINING LOX ON 053 AND SUBMITTED IT FOR ANALYSIS TO FTC. LAB REPORT RECEIVED SHOWED LOX SLIGHTLY OUT OF SPECIFICATIONS.

RESULTS AS FOLLOWS:

REQUIREMENT

T.O. 12B6-1-1 RESULTS SAMPLE

99.5 PERCENT MIN 99.04 PERCENT

PURITY

50 PPM MAX 61 PPM

METHANE

10 PPM MAX 3 PPM

CO2

2 PPM MAX 0.3 PPM

N2O

2 PPM MAX 0.1 PPM

REFRIGERANTS

3. THE DIFFERENCES NOTED FOR USAF SPECIFICATIONS APPLIED TO SAMPLE

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FILE INFO

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ACTION	1	6	11	16
	2	7	12	17
25X1	3	8	13	18
	4	9	14	19
	5	10	15	20

AGE 2

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DO NOT APPEAR SIGNIFICANT. IN ADDITION, THE [REDACTED] WAS MIXED WITH

[REDACTED] WHEN 053 WAS SERVICED [REDACTED]

4. DECISIONS AND MANNER OF PASSING THIS INFO TO [REDACTED] IF DEEMED APPROPRIATE, IS BEING LEFT TO THE DISCRETION OF [REDACTED]

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[REDACTED]
AMS/OSA

[REDACTED]
14 May 69

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D/SA/OSA
D/O/SA
D/M/OSA
Ideas/O/OSA
AMS/OSA
RB/OSA

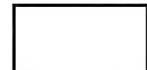
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ADM - 14 May
4/10*

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1. ON THE VERY SUCCESSFUL RETURN LEG OF SCOPE SAINT II, ONE MINOR PILOT COMPLAINT WAS MADE THAT I THOUGHT WOULD INTEREST YOU. THE PILOT COMPLAINED OF MILDLY BURNING EYES AND AN ODOR AFTER NINE (9) PLUS HOURS FLYING TIME (APPROX TEN (10) PLUS HOURS ON OXYGEN).

2. THREE (3) POSSIBLE CAUSES, EITHER HAVING SINGULAR OR CUMULATIVE ACTION, MAY HAVE PRODUCED THIS EYE IRRITATION AND ODOR. THIS PILOT IS KNOWN TO PERSPIRE HEAVILY AND THE PERSPIRATION OR ITS VAPOR COULD IRRITATE THE EYES AND THE WETTED MATERIALS IN THE HELMET COULD CAUSE THE ODOR. IN FACT A FAIR AMOUNT OF PERSPIRATION WAS COLLECTED FROM HIS HELMET AFTER LANDING. SECONDLY, BREATHING OXYGEN DOES TEND TO HAVE A DRYING EFFECT ON THE EYES AND MUCOUS MEMBRANES OF THE ORAL-NASAL PASSAGES, WHICH COULD INCREASE SENSITIVITY TO IRRITATION AND ODOR. FINALLY, TRACE

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CONTAMINANTS IN THE LIQUID OXYGEN COULD CAUSE THE EFFECTS NOTED,
PARTICULARLY IN COMBINATION WITH THE OTHER FACTORS NOTED.

3. THE LOX REMAINING IN THE AIRCRAFT UPON LANDING, WHICH
WAS A MIXTURE OF WHAT WAS PREVIOUSLY IN THE CONVERTERS AND THAT
25X1 ADDED [REDACTED] WAS SAMPLED AND ANALYZED. THE
RESULTS WERE AS FOLLOWS:

<u>REQUIREMENT</u>	<u>SAMPLE RESULTS</u>	
PURITY	99.04 PERCENT	
METHANE	61	PPM
CO ₂	3	PPM
N ₂ O	0.3	PPM
REFRIGERANTS	0.1	PPM

4. THE ANALYSIS RESULTS ARE NOT SIGNIFICANT IN GENERAL.
THE SLIGHTLY ELEVATED LEVEL OF METHANE COULD CONTRIBUTE TO THE
EFFECTS NOTED ABOVE ONLY BECAUSE SOME SUBSTANCES, WHICH HAVE
ODORS THAT THE HUMAN CAN DETECT AT VERY, VERY LOW LEVELS, HAVE
AN AFFINITY FOR METHANE AND TEND TO ADHERE TO THIS GAS, THUS

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BRING CARRIED THRU THE OXYGEN SYSTEM TO THE PILOT. METHANE HAS VIRTUALLY UNLIMITED SOLUBILITY IN LOX AND THUS IS MOST LIKELY INTRODUCED DURING THE VARIOUS TRANSFER OPERATIONS, NOTABLY FROM LOX STORAGE TANK TO LOX SERVICING CART, AND FROM THE SERVICING CART TO THE AIRCRAFT.

5. BECAUSE WE ARE COLLECTIVELY EXPLORING THE UNIQUE AND NEW AREA OF EXCEPTIONALLY LONG AIRCRAFT FLIGHTS IN FULL PRESSURE SUITS, ALL ASPECTS OF PILOT COMFORT AND EFFICIENCY ARE OF GREAT INTEREST TO US AND I SEND YOU THIS INFORMATION WITH RESPECT TO OUR COMMON INTERESTS. IN SUMMARY, WE FIND NO SPECIFIC CAUSE FOR THE EFFECTS NOTED, AND SUSPECT A COMBINATION OF CAUSES. OUR ACTION IS TO ASSURE OURSELVES THAT THE PILOTS ARE USING THE AIRCRAFT AIR-CONDITIONING/VENTILATION SYSTEM PROPERLY TO REDUCE PERSPIRATION TO INSURE THAT THE OXYGEN FLOW PATTERN IN THE HELMET DOES NOT ADD TO THE DRYING EFFECT ON THE EYES, AND TO INSURE THAT OUR LOX SERVICING PERSONNEL USE ALL KNOWN PROCEDURES

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TO PREVENT CONTAMINATION DURING TRANSFER OF LOX AGAIN, WE ARE NOT
CONCERNED BUT WANTED TO KEEP YOU INFORMED [REDACTED]

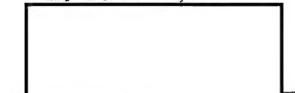
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[REDACTED]
ILLEGIB

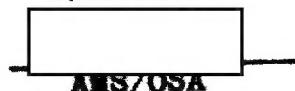
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COORD

D/O/OSA



D/M/OSA



AMS/OSA

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ILLEGIB

[REDACTED]
DONALD H. ROSS
D/SA

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CLASSIFICATION
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THIS DOCUMENT REQUIRES SPECIAL HANDLING

HANDLING PROCEDURES

THIS DOCUMENT CONTAINS INFORMATION REGARDING A HIGHLY CLASSIFIED ACTIVITY. PERMISSION TO TRANSFER CUSTODY, OR PERMIT ACCESS TO THIS DOCUMENT MUST BE OBTAINED FROM THE ORIGINATOR. HAND CARRY PROCEDURES WILL BE APPLIED TO ANY INTER-OFFICE OR INTRA-AGENCY MOVEMENT OF THIS DOCUMENT.

Distribution for
AMA/OSA

DATE 14 MAY 1969

JEE

DFP

BEB PZB
EC ECC

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